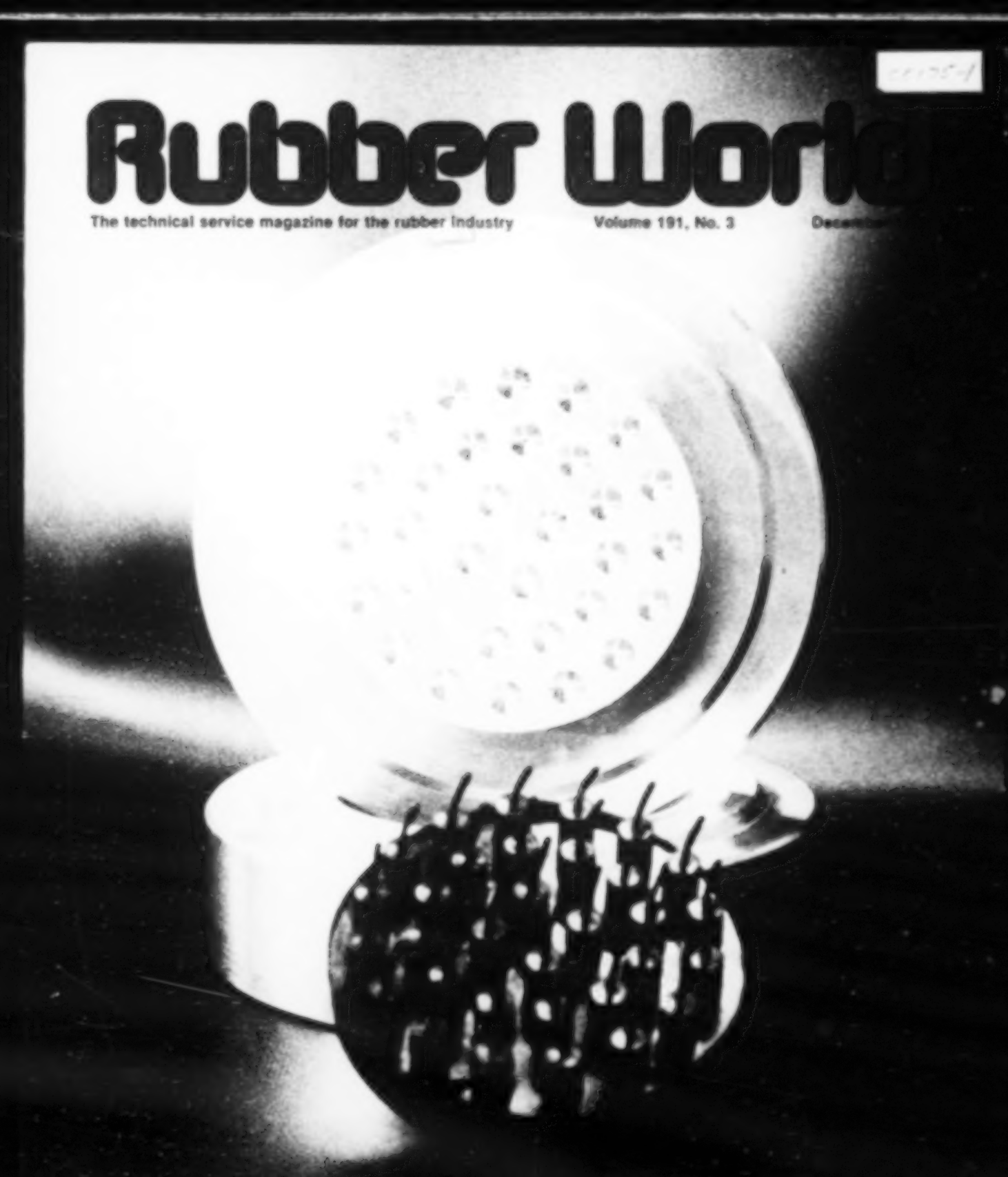
Rubber World

The technical service magazine for the rubber industry

Volume 191, No. 3 Dece



A new approach to ventless molding

Designing for dynamic isolation and motion control

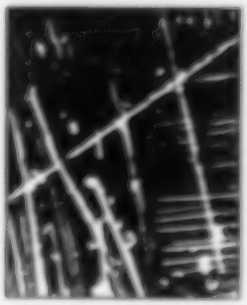
High temperature adhesion of glass fiber cloth

Contents

Vol. 191, No. 3/December 1984

Ventless molding p. 18

Designing with elastomers p. 22



Glass fiber adhesion p. 32

6 Business Briefs
Acquisitions, expansions, contracts, licenses, financial statements, price changes, markets, news

14 Tech Service — Controlling the situation
by Jon Menough, contributing technical service editor. Close tolerances can be obtained in the extrusion process and one such instance is detailed.

18 A new approach to ventless molding
by Jerome J. Blayne and James Sides, BFGoodrich. Authors describe the practice of steam purging for removing air from the mold.

22 Design with elastomers for dynamic isolation and motion control
by Andrew D. Campuzy, Lord Corp. Author presents an overview of the considerations important in the design of elastomeric isolators which requires the interrelationship of several areas of technology.

32 High temperature adhesion of glass fiber cloth
by S. Bandyopadhyay, C.K. Das and M. Chakrobortty, I.I.T., India. Authors look at a polysulfide silane coupling agent for glass fiber cloth.

38 New Patents
edited by Bob Samples, Akron Rubber Development

41 Technical Focus — Computer technology is enhancing rubber chemistry
by David Given, technical editor. Microprocessors have given the chemist more freedom while increasing productivity in the lab.

46 Techno Mart
New materials, instruments, equipment, products and CAD/CAM.

Departments

4	Editorial	40	Calendar	54	Literature
38	Meetings	50	Jobs & People	56	Advertisers Index

Cover

Cover photo courtesy of BFGoodrich Chemical

A Lippincott & Peto Publication

Business Briefs

Acquisitions, expansions

GAF Corp. will spend $95 million in the next two years in expanding its chemical plants in Calvert City, KY, Texas City, TX and Marl, West Germany and its roofing materials plants. The first phase calls for a 40% capacity expansion for butynediol and butanediol.

Union Chemicals is expanding SBR latex capacity by 40 million pounds annually at its Charlotte, NC plant to be on stream in May 1985.

MKB Industries has moved into a greatly expanded facility in Stratford, CT.

Witco Chemical's acquisition of **Continental Carbon** was for $23 million the company said.

Cooper Tire made the final payment of a 20 year lease/purchase option agreement on its El Dorado, AR plant.

BFGoodrich purchased a **CBS Inc.** vinyl compounding plant in Terre Haute, IN with an annual capacity of more than 60 million pounds.

N.V. Bekaert S.A. has taken over the activities of **Omag Composites N.V.**, a designer and manufacturer of reinforced plastic components.

Alkar, Inc. is undergoing a 10,500 sq. ft. expansion of its rubber machinery rebuilding operations in Kent, OH.

Semperit of Austria is investing AS 1,000 million at its Wimpassing facility. The largest portion will be a new hose factory with substantial sums going for increasing capacity for medical gloves and a new molded component factory.

CasChem has added 22 million pounds per year capacity for a new line of proprietary polyols at its Bayonne, NJ facility.

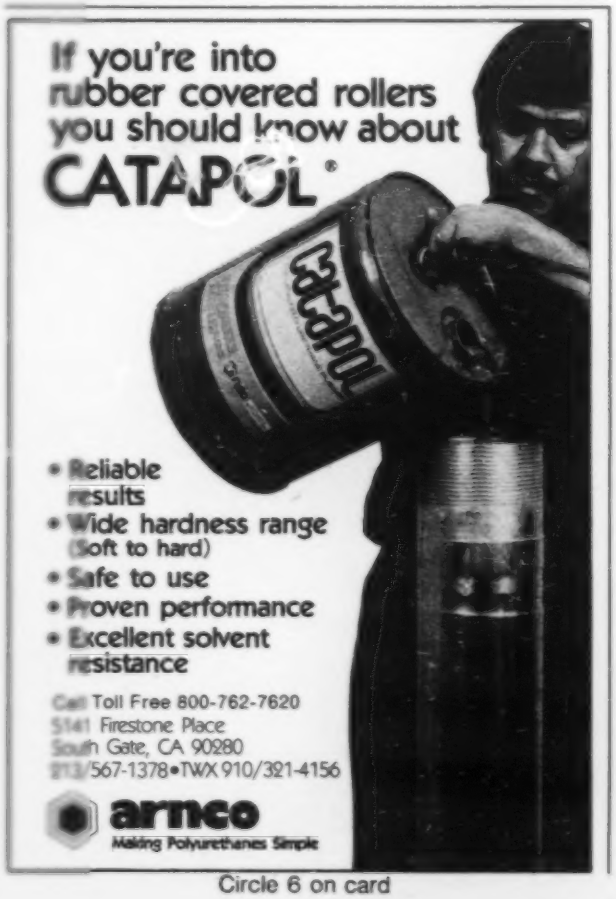
PMS Consolidated has added color concentrate production capability for molded and extruded thermoplastics at its Carolina, Pureto Rico plant.

Rexnord purchased the assets of **Canadian Adhesives, Ltd.** with manufacturing facilities in Montreal and Brampton, Ontario. Rexnord also opened a west coast warehouse and distribution center in Hayward, CA for its Sonneborn Building Products operation.

The Amark Co., Merrimack, NJ has been formed to sell and service capital equipment to the rubber and plastics industries.

RMA industry rubber report through August 1984 (figures are expressed in metric tons)

	Cumulative 1984	Cumulative 1983	% Change 84 vs 83
Total New Rubber			
New rubber available	2,137,971	1,802,949	18.58
Imports	701,466	550,542	27.41
Exports	257,730	206,825	24.61
Apparent Consumption	1,854,543	1,603,263	15.67
Total Natural Rubber			
Imports	540,566	438,880	23.18
Exports	19,351	11,807	63.89
Apparent Consumption	519,260	431,540	20.33
% Total new rubber	28.00	26.91	
Total Synthetic Rubber			
Production	1,436,505	1,252,407	14.70
Imports	160,900	111,682	44.07
Exports	238,379	195,018	22.23
Apparent Consumption	1,335,262	1,171,722	13.96
% Total new rubber	71.99	73.08	
Total SBR			
Production	650,785	587,138	10.84
Imports	48,837	37,420	30.51
Exports	72,956	54,959	32.75
Apparent Consumption	614,805	580,739	5.87
Total Nitrile			
Production	43,692	35,048	24.66
Imports	7,935	6,068	30.77
Exports	5,346	4,179	27.93
Apparent Consumption	44,397	36,614	21.26
Polybutadiene			
Production	247,460	209,998	17.84
Imports	44,659	27,890	60.13
Exports	15,699	10,612	47.94
Apparent Consumption	274,140	223,445	22.69
Ethylene-Propylene			
Production	149,446	111,138	34.47
Imports	700	380	84.21
Exports	24,077	20,839	15.54
Apparent Consumption	117,030	89,078	33.38
Butyl, Polyisoprene, Silicone and other Synthetic Elastomers			
Production	259,545	232,483	11.64
Imports	55,768	37,401	49.11
Exports	93,293	74,818	24.69
Apparent Consumption	223,321	187,949	18.82
Polychloroprene			
Production	85,576	76,603	11.71
Imports	3,001	2,523	18.95
Exports	27,008	29,611	–8.79
Consumption	61,567	53,899	14.23



Circle 6 on card

RMA monthly tire & tube shipments & production report through August 1984
(figures in thousands of units)

Passenger Tires	**1984**	**1983**	**% Change**
Shipments			
Original Equipment	34,311	26,909	+27.52
Radial	28,841	22,428	+27.70
Replacement	96,881	90,444	+6.90
Radial	73,440	62,327	+17.83
Export	4,042	2,512	+60.91
Radial	3,000	1,689	+77.62
Total	135,034	119,862	+12.66
Radial	105,081	86,444	+21.56
Production	116,222	103,456	+12.34
Radial	87,280	72,060	+21.10
Truck & Bus Tires			
Shipments			
Original Equipment	5,269	3,352	+57.19
Radial	2,713	1,525	+77.90
Replacement	20,814	19,014	+9.47
Radial	7,185	6,128	+17.26
Export	882	666	+32.43
Radial	418	323	+29.41
Total	26,965	23,032	+17.06
Radial	10,316	7,976	+29.34
Production	24,366	19,754	+23.30
Radial	9,353	6,030	+55.11

Financial statements

American Biltrite reported third quarter earnings were $1.06 million on sales of $22.7 million.

Armstrong Rubber reported 1984 net income was a record $25.4 million and net sales were $665.6 million.

The Biltrite Corp. reported a net loss for the third quarter of $8.01 million on sales of $12.1 million.

Cabot Corp. reported 1984 net income was $97 million and net sales were $1.7 billion.

Carlisle Corp. reported third quarter net earnings of $8.5 million on sales of $138.7 million.

Crompton & Knowles Corp. had sales of $55.1 million and net earnings of $1.7 million.

Myers Industries reported third quarter earnings were $1.03 million on sales of $21.3 million.

Park-Ohio reported third quarter net income of $2.29 million with sales of $47.3 million.

Markets, news

The demand for tires in the United States may decline in the next five years Rubber Manufacturers Association president Donald Brotzman told the group's annual meeting. He said product performance would be the primary reason for the flattening out or slight decline. The RMA forecasts show increases for industrial products and molded, extruded and lathe-cut goods in the next five years around 3% annually.

Preliminary findings of a study by Landell Mills Commodities Studies show continued hard times for producers of emulsion styrene-butadiene rubber. Citing a present over capacity caused by a switch to other rubbers in the carcass of a tire and aggressive exporting by developing countries as two sources for SBR producer's problems. The study says SBR producers that have the capacity to produce solution polymers, whether polybutadiene, solution SBR o r polyisoprene can benefit from the changing requirements of their tire customers.

ACADEMIC PRESS, INC.

A Subsidiary of Harcourt Brace Jovanovich, Publishers

POLYMER SCIENCE BOOKS

Rudin: The Elements of Polymer Science and Engineering—An introductory text for engineers and chemists intended as the basis for a two or three semester course in synthetic macromolecules. 465 pages.

Turi: Thermal Characterization of Polymeric Materials—Provides an in-depth overview of thermal analysis, concentrating on the polymer field. The three major parts of the book deal with instrumentation, theory and applications. Multiple contributors. 921 pages.

Tadros: Effects of Polymers on Dispersion Properties—Based on the proceedings of an International Symposium of the Colloid and Surface Chemistry Group of the Society for Chemical Industry held at University College, London, England, from September 21-23, 1981. 418 pages.

RUBBER WORLD MAGAZINE, P.O. Box 5485, 1867 W. Market St., Akron, OH 44313. Send me the book(s) checked below.

Check must accompany order. Foreign Customers: Payment must be made in U.S. currency, U.S. Bank Draft, international money order, or UNESCO coupons. Foreign orders will **not** be shipped Air Freight unless so indicated on order.

_____Rudin: The Elements of Polymer Science & Engineering $29.95

_____Turi: Thermal Characterization of Polymeric Materials $98.00

_____Tadros: Effects of Polymers on Dispersion Properties $41.00

Name _____

Address _____

City _____ State _____ Zip _____